NUS CORPORATION

992 OLD EAGLE SCHOOL ROAD, SUITE 916
WAYNE, PENNSYLVANIA 19087
215-687-9510

January 29, 1985
R-585-12-3-10
68-01-6699

Mr. Harold Byer
U.S. Environmental Protection Agency
Sixth and Walnut Streets
Philadelphia, PA 19106

Subject: Addendum to Final Field Trip Report
TDD No. F3-8306-17
Miller Chemical and Fertilizer
Whiteford, Maryland

Dear Mr. Byer:

Submitted herewith is a final addendum to the Field Trip report for the subject project.

This report presents the priority pollutant information and data collected during the original dioxin screening study. The analysis did not identify any contaminants at levels of concern. Considering the available information and the state of Maryland involvement, FIT III offers the following for EPA consideration:

- That no further action be taken at this site in regard to priority pollutants.

If you have any questions, please contact me.

(b) (4) [redacted]

(b) (4) [redacted]

4267754

CBI

R-585-3-4-10

A FIELD TRIP REPORT FOR MILLER CHEMICAL AND FERTILIZER COMPANY PREPARED UNDER

TDD NO. F3-8310-19
EPA NO.
CONTRACT NO. 68-01-6699

FOR THE

HAZARDOUS SITE CONTROL DIVISION
U.S. ENVIRONMENTAL PROTECTION AGENCY

MARCH 29, 1984

NUS CORPORATION
SUPERFUND DIVISION

(b) (4) [redacted]

[redacted] William Wentworth [redacted]

TABLE OF CONTENTS

SECTION 1

1.0 INTRODUCTION

1.1 Authorization

NUS Corporation performed this work under Environmental Protection Agency Contract No. 68-01-6699. This specific report was prepared in accordance with Technical Directive Document No. F3-8310-19 for the Miller Chemical and Fertilizer Company located in Whiteford, Maryland.

1.2 Scope Of Work

FIT III was tasked to perform a Phase II site inspection at the subject site, including additional sampling. These samples were to be obtained in the area on site where previous sampling had detected the presence of 2,3,7,8-TCDD in a surface soil sample.

1.3 Summary

NUS FIT III visited the Miller Chemical and Fertilizer Company on Tuesday, October 18, 1983 to conduct a Phase II dioxin investigation. Using CDC and EPA approved sampling and packaging protocol, samples were collected on site in accordance with a sampling plan developed by NUS and approved by Neil Swanson, U.S. EPA Region III. The area of concern was the location of a sample collected during the Phase I dioxin visit on June 22, 1983 which revealed evidence of 2,3,7,8-TCDD contamination upon analysis. In an attempt to determine the extent of contamination, the following samples were collected: using the exact location of the positive result as its center, at a distance of 20 feet at a north, south, east and west bearing, a surface soil sample was taken; a similar sample was taken at a distance of 10 feet at a northeast, southeast, southwest and northwest bearing; 2 samples from the exact location of the positive result were also taken, 1 surface and 1 soil sample at a depth of 18 inches below the surface.

These samples were blended and packaged as per CDC protocol and shipped to an EPA contract lab for 2,3,7,8-TCDD analysis. This analysis has revealed the presence of 2,3,7,8-TCDD in 8 of the 10 samples collected. These results have been confirmed by an NUS Quality Assurance Review.

The highest concentration was found in the exact location of the positive result obtained in the Phase I investigation. Concentrations were reduced progressively in samples obtained further from this point as well as in a sample collected at a depth of 18 inches below the positive result. This would appear to indicate that the 2,3,7,8-TCDD confirmation is a localized problem and not wide spread throughout the area.

SECTION 2

2.0 FIELD TRIP REPORT

2.1 Summary

On October 18, 1983 FIT III representatives Thomas Fromm, Laura Boornazian, David Walker, and Michael Nalipinski conducted the tasked Phase II dioxin sampling at the Miller Chemical and Fertilizer Company site. This time a total of 10 samples were collected, excluding quality control samples.

2.2 Persons Contacted

2.2.1 Prior to Field Trip

Neil Swanson
U.S. EPA
Curtis Building
Sixth and Walnut Streets
Philadelphia, PA 19106
215-597-3437

2.2.2 At the Site

Neil Swanson
U.S. EPA
Curtis Building
Sixth and Walnut Streets
Philadelphia, PA 19106
215-597-3437

Akskay Vidijarthi
Miller Chemical and Fertilizer Co.
Whiteford, MD
717-632-8921

Howard Harvey
Miller Chemical & Fertilizer Co.
Whiteford, MD
717-632-8921

Howard Dye
MD Dept. of Health and Mental Hygiene
Baltimore, MD
301-383-6650

TDD Number F3-8310-19
EPA Number

2.3 SAMPLE LOG

Site Name Miller Chemical

Station Number: Organic	Station Number: Inorganic	Station Number: 2,3,7,8-TCDD High Hazard	SAMPLING LOCATION	PHASE	Tag Number	DATE	TIME	pH	COMMENTS/OBSERVATIONS	LABORATORY
		1	Soil #1	solid	3-29851	10/18/83	0910			Wright State
		2	Soil #2		3-29852		0915			
		3	Soil #3		3-29853		0918			
		4	Soil #4		3-29854		0910			
		5	Soil #5		3-29855		0912			
		6	Soil #6		3-29856		0915			
		7	Soil #7		3-29857		0920			
		8	Soil #8		3-29858		0922			
		9	Soil #9		3-29859		0924			
		10	Soil #10		3-29860		0945			
		11	Rinseate	aqueous	3-29861		1042			
		12	Background soil	solid	3-29885	10/20/83	0940			
		13	Background soil dup.		3-29886		0940			
		14	Performance audit		3-29887		1000			
		15	Performance audit		3-29888		1000			

2.4 Site Obvservations

- Environmental conditions on the day of the visit were cool, overcast and foggy.

- A personnel decontamination station (PDS) including the command post and sample blending area were set up using prescribed dioxin protocol.

- All wooden stakes placed at previous sample locations were intact.

- The area of concern was located and the sample locations laid out as directed by the site sampling plan. A silva ranger compass and fiberglass tape were used to complete this task.

- Samples were collected using the appropriate level of protection.

- Once collected, the samples were returned to the blending area, and blended and packaged using CDC approved protocol.

- Split samples were provided to a site representative; these samples were not blended.

- All samples collected were grab samples.

EPA REGION III
SUPERFUND DOCUMENT MANAGEMENT SYSTEM

DOC ID # 4267754
PAGE # _____

IMAGERY COVER SHEET
UNSCANNABLE ITEM

Contact the CERCLA Records Center to view this document.

SITE NAME Miller Chemical + Fertilizer

OPERABLE UNIT 00

SECTION/BOX/FOLDER 1e/BOX 1/CB1 1

REPORT OR DOCUMENT TITLE Field Trip Report

DATE OF DOCUMENT 3/29/84

DESCRIPTION OF IMAGERY 2.5 Photographic Log

NUMBER AND TYPE OF IMAGERY ITEM(S) 10 photos

SECTION 3

3.0 LABORATORY DATA

3.1 SAMPLE DATA SUMMARY

TABLE 1

BRENM LABORATORY, WRIGHT STATE UNIVERSITY, DAYTON, OHIO 45435

RESULTS OF HRGC-LRMS ANALYSES OF EXTRACTS OF EPA/REGION III SAMPLES SUBMITTED UNDER VIAR & COMPANY SAS NO. 806C FOR 2,3,7,8-TETRACHLORODIBENZO-p-DIOXIN(TCDD)

EPA Sample Number[d.]	Extraction[a.]	Cleanup[b.]	WSU Sample Number	Sample Weight (grams)	Concentration of 2,3,7,8-TCDD[c] (µg/Kg, ppb)	D.L. (µg/Kg)	Date Time	Ratio m/z 320 m/z 322	Surrogate Percent Accuracy	Ratio m/z 332 m/z 334	m/z 320	m/z 322	m/z 257[e.]	m/z 259	m/z 328	m/z 332	m/z 334
MB	J	B&C	NMC-0	--	N.D.	0.04	11/2/83 1544	--	103	0.77	185	180	N-150	1210	22815	18400	23760
3-29851	J	B&C	NMC-1	11.72	0.10	--	11/2/83 1610	0.76	102	0.77	950	1245	365	675	25940	21095	27400
3-29852	J	B&C	NMC-2	10.20	0.25	--	11/2/83 1638	0.84	101	0.77	2450	2910	1060	1230	28570	23465	30366
3-29853	J	B&C	NMC-3	10.15	N.D.	0.04	11/3/83 1158	--	101	0.80	126	210	N-100	N-200	24200	20805	25900
3-29854	J	B&C	NMC-4	10.39	0.14	--	11/3/83 1230	0.85	98	0.80	1390	1643	320	N-440	28890	25530	32050
3-29855	J	B&C	NMC-5	10.17	N.D.	0.04	11/3/83 1318	--	102	0.80	240	275	N-230	N-200	27690	23510	29230
3-29856	J	B&C	NMC-6	10.45	0.18	--	11/3/83 1350	0.85	99	0.75	1780	2083	600	418	29045	24610	32720
3-29857	J	B&C	NMC-7	10.43	0.39	--	11/3/83 1415	0.82	103	0.80	5030	6110	2060	2400	39665	33425	41810
3-29858	J	B&C	NMC-8	11.34	0.81	--	11/3/83 1441	0.83	104	0.74	9800	11890	4370	4210	34160	27280	36740
3-29859	J	B&C	NMC-9	10.16	1.76	--	11/3/83 1507	0.83	103	0.79	9975	11940	4140	3600	17560	14700	18520
3-29860	J	B&C	NMC-10	11.02	0.17	--	11/3/83 1535	0.86	102	0.77	1820	2115	790	960	29707	24620	32050
3-29861	J	B&C	NMC-11	130.99	N.D.	0.02	11/3/83 1601	--	101	0.78	100	120	N-100	N-200	32950	27790	35710
3-29885	J	B&C	NMC-12	10.67	N.D.	0.04	11/3/83 1626	--	103	0.77	N-70	N-180	N-100	N-200	24520	20300	26300
3-29886N	J	B&C	NMC-13N	10.45	1.33	--	11/3/83 1651	0.86	97	0.78	13030	15415	5470	5675	27700	24580	31380
3-29887	J	B&C	NMC-14	9.95	2.02	--	11/3/83 1713	0.87	98	0.77	24880	28585	10090	10100	36085	31445	40750
3-29888	J	B&C	NMC-15	10.29	2.00	--	11/3/83 1735	0.87	96	0.77	19580	22370	8440	8270	27210	24030	31095
3-29859D	J	B&C	NMC-9B-D	10.84	1.11	--	11/17/83 1623	0.81	90	0.77	2838	3510	1225	1190	6435	4360	5660
3-29888H	J	B&C	NMC-15H	10.29	2.07	--	11/17/83 1255	0.89	101	--	79306	88857	--	--	114388	70986	--

a. J = Jar Method. b. B = Option B - Region VII EPA Protocol; C = Option C - Region VII EPA Protocol.

c. "N.D." indicates "Not Detected" at concentration in excess of D.L. cited.

d. Suffix - N = Native Spike; Suffix - D = Duplicate; Suffix - H = High Resolution.

e. "N"indicates noise level, signal does not exceed noise by factor of 2.5

3.2 Quality Assurance Review

3.2.1 Dioxin Data: Lab Case No. SAS 806C

3.2.1.1 *Introduction*

The findings offered in this report are based upon a general review of all available sample data. Blank analysis, surrogate, matrix spike, duplicate, and performance audit results, calibration standards, and isomer separation standards were examined in detail.

3.2.1.2 Qualifiers

It is recommended that this data package be utilized only with a qualifier stating that the dioxin concentration at these sampling locations may be somewhat inhomogeneous. However, all analytical results appeared valid.

3.2.1.3 Findings

Comparison of the resampling results for station 9 versus analytical results from an earlier sampling at the same point and depth reveal a relative percent difference (RPD) between these results of 139 percent. (The mean of the results from the original sampling at this station was 0.26 ug/kg, whereas the mean of the results from the resampling at the same station was 1.44 ug/kg.) Consequently, results for other nearby sampling points may not reflect the average concentration of dioxin in the immediate proximity of each sampling point. (However, it should be noted that field blending of samples was performed, and when results were compared only within each sampling project, a total of 6 analyses from this sampling point revealed interlaboratory and intralaboratory precision which was less than 50 percent relative percent difference in each case.)

3.2.1.4 Summary

The attached Quality Assurance Review has revealed inhomogeneity as the major area of concern. Please see the accompanying support documentation appendix to this report for specifics on this Quality Assurance Review.

Report prepared by Russell J. Sloboda _____ Date: Feb. 15, 1984

APPENDIX A

1. COST CENTER: / ACCOUNT NO.:	REM/FIT ZONE CONTRACT TECHNICAL DIRECTIVE DOCUMENT (TDD)	2. NO.: F3-8310-19

3. PRIORITY:	4. ESTIMATE OF TECHNICAL HOURS:	5. EPA SITE ID:	6. COMPLETION DATE:	7. REFERENCE INFO.:
[X] HIGH [ ] MEDIUM [ ] LOW	120		3 days after QA results	[X] YES [ ] NO [ ] ATTACHED [X] PICK UP Neil Swanson
	4A. ESTIMATE OF SUBCONTRACT COST:	5A. EPA SITE NAME: Miller Chemical		

8. GENERAL TASK DESCRIPTION: Conduct a Phase II Dioxin sampling at Miller Chemical, MD.

9. SPECIFIC ELEMENTS:

1. Contact Neil Swanson for information pertaining to date of sampling and extent of sampling.
2. Develop, with EPA, a sampling plan.
3. Arrange for lab analysis - Dioxin ONLY
4. Follow protocol established for Phase I sampling.
5. File field trip report and QA.

10. INTERIM DEADLINES:

11. DESIRED REPORT FORM: FORMAL REPORT [ ] LETTER REPORT [X] FORMAL BRIEFING [ ]

OTHER (SPECIFY):

12. COMMENTS:

13. AUTHORIZING RPO: Harold G. Bye (SIGNATURE)

14. DATE: 11/3/83

15. RECEIVED BY: [X] ACCEPTED [ ] ACCEPTED WITH EXCEPTIONS [ ] REJECTED
Donald Simonis (CONTRACTOR RPM SIGNATURE)

16. DATE: 11/9/83

Sheet 1 White – FITL Copy
Sheet 2 Canary – DPO Copy
Sheet 3 Pink – Contracting Officer's Copy (Washington, D. C.)
Sheet 4 Goldenrod – Project Officer's Copy (Washington, D. C.)

APPENDIX B

Sampling C-585-6-3-54
Blending Procedure

Samplers take sample in 1 qt. stainless steel blender cup.

Blender cup should be filled no more than 3/4 full.

Note: Attempt to avoid placing stones in the blender cup. Samplers should also break up large clumps of soil.

Sample is then returned to blending station.

Blending procedure will commence as follows:

1 Pulse blender five (5) times.
2 Invert blender cup several times and shake.
3 Repeat this procedure six (6) times for a total of 30 pulses.
4 Allow the blender to sit for two to five minutes to allow all dust to settle.

Person who is blending removes right glove to open sample jar, glove is put back on when filling the jar.

Sample will be removed from the blender cup utilizing scoopulas which will be disposed of when the sample jar has been filled.

Right glove is removed for the capping of the jar.

Remove baggie and rubber band and place in designated receptacle.

Sample jar is decontaminated with 1,1,1-trichloroethane is visual contamination is evident.

Sample is then tagged, and processed by the site leader.

Any material remaining in blender cup is disposed of in the waste receptacle.

Blender cup is cleaned with soap and water and scrubbed with brush if necessary.

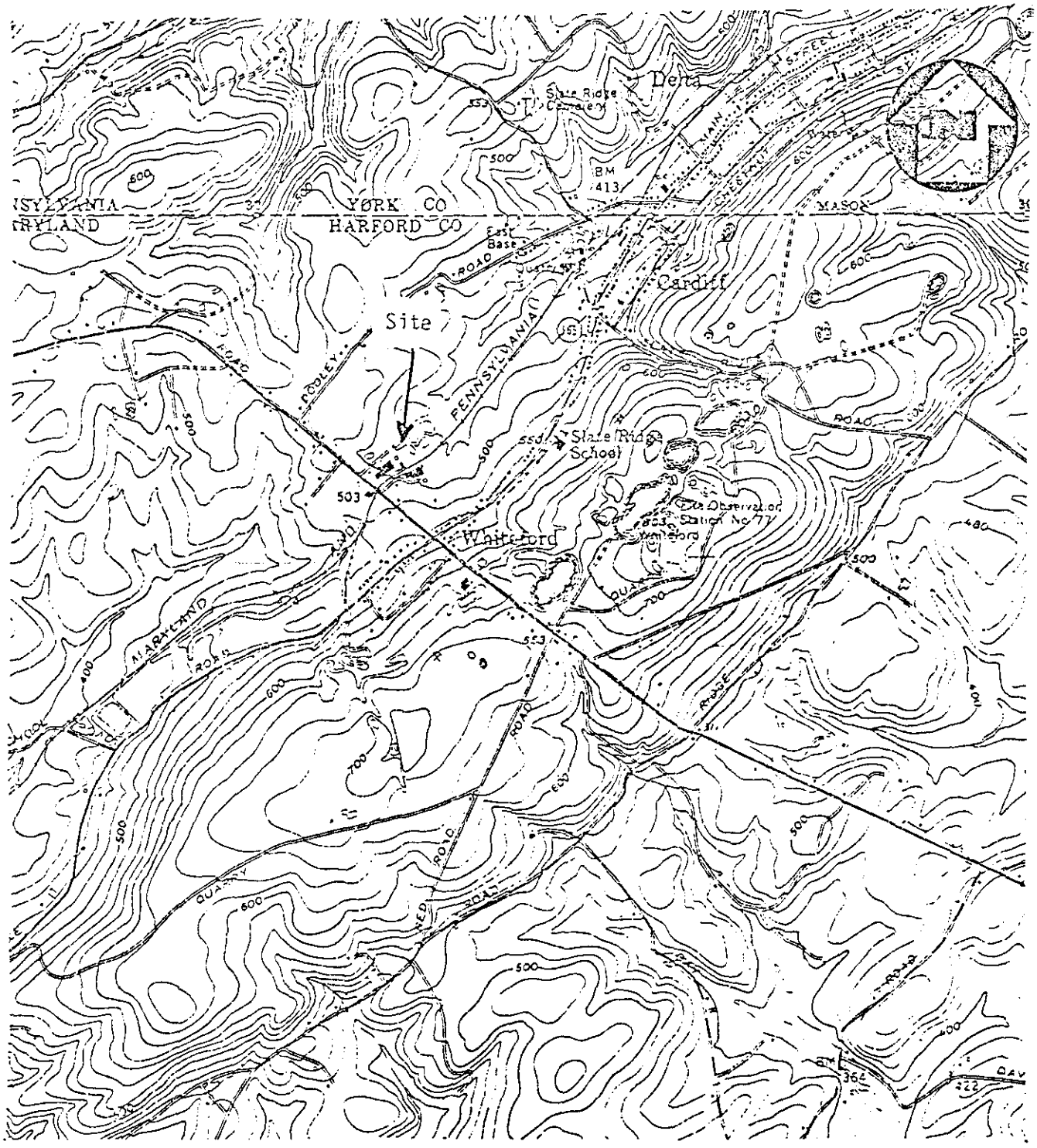
Blender cup is filled 1/4 to 1/2 full with soapy water and agitated (blended) for 30 seconds.

Cup is then rinsed with distilled water, alcohol, and 1,1,1-TCE. Allow to drip dry.

Sample cup is ready to receive next sample.

APPENDIX C

SITE NAME: Miller Chemical
TDD NO.: F3-8310-19
EPA NO.: M-03
TITLE: Site Location Map
FIGURE NO.: 1

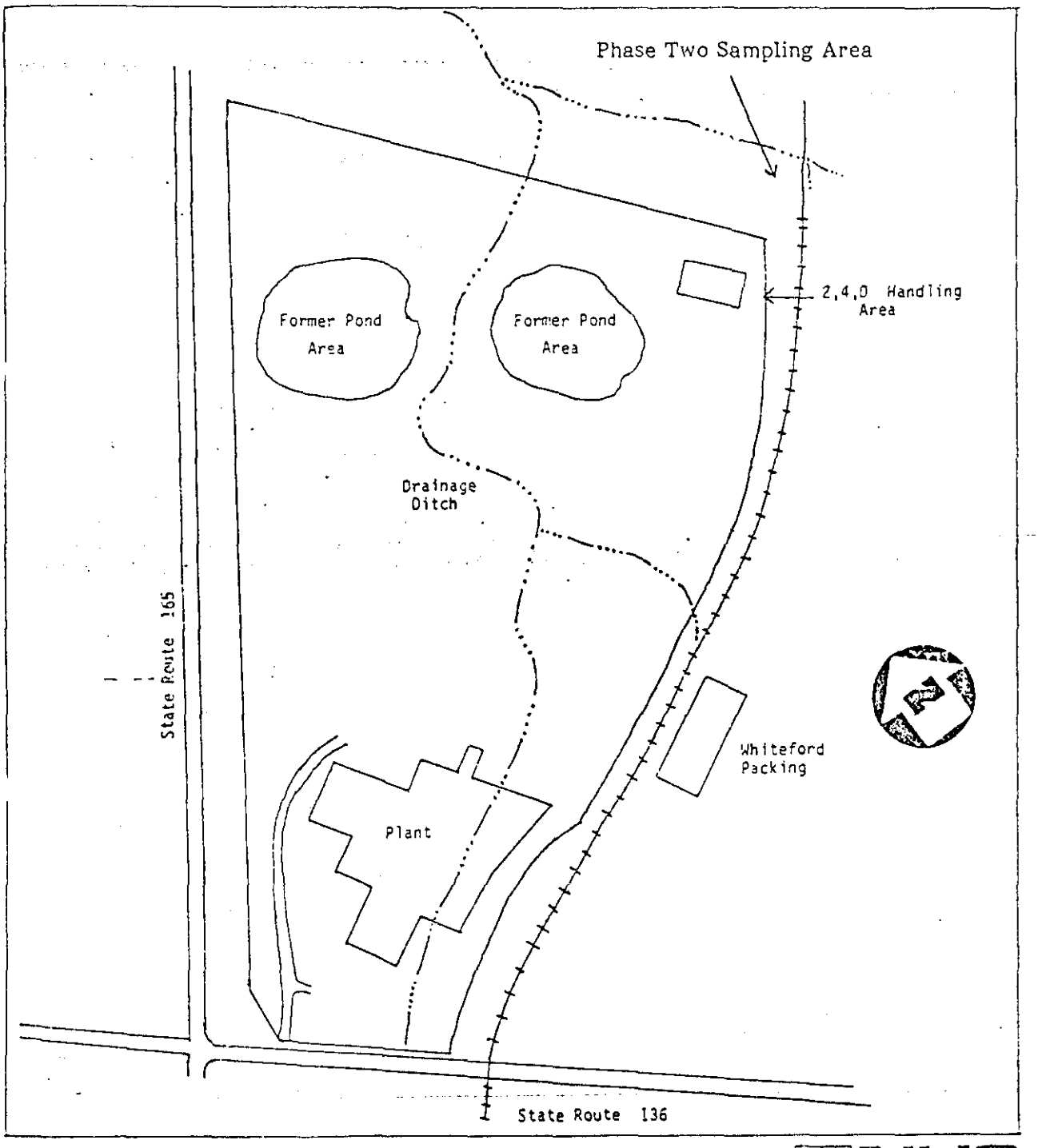


SOURCE: Delta, MD Quadrangle

SCALE: 1:24000

NUS CORPORATION
A Halliburton Company

SITE NAME: Miller Chemical
TDD NO.: F3-8310-19
EPA NO.: M-03
TITLE: Site Sketch
FIGURE NO.: 2



NUS CORPORATION
A Halliburton Company

SOURCE: Field Visit 6/22/83

SCALE: Not to Scale

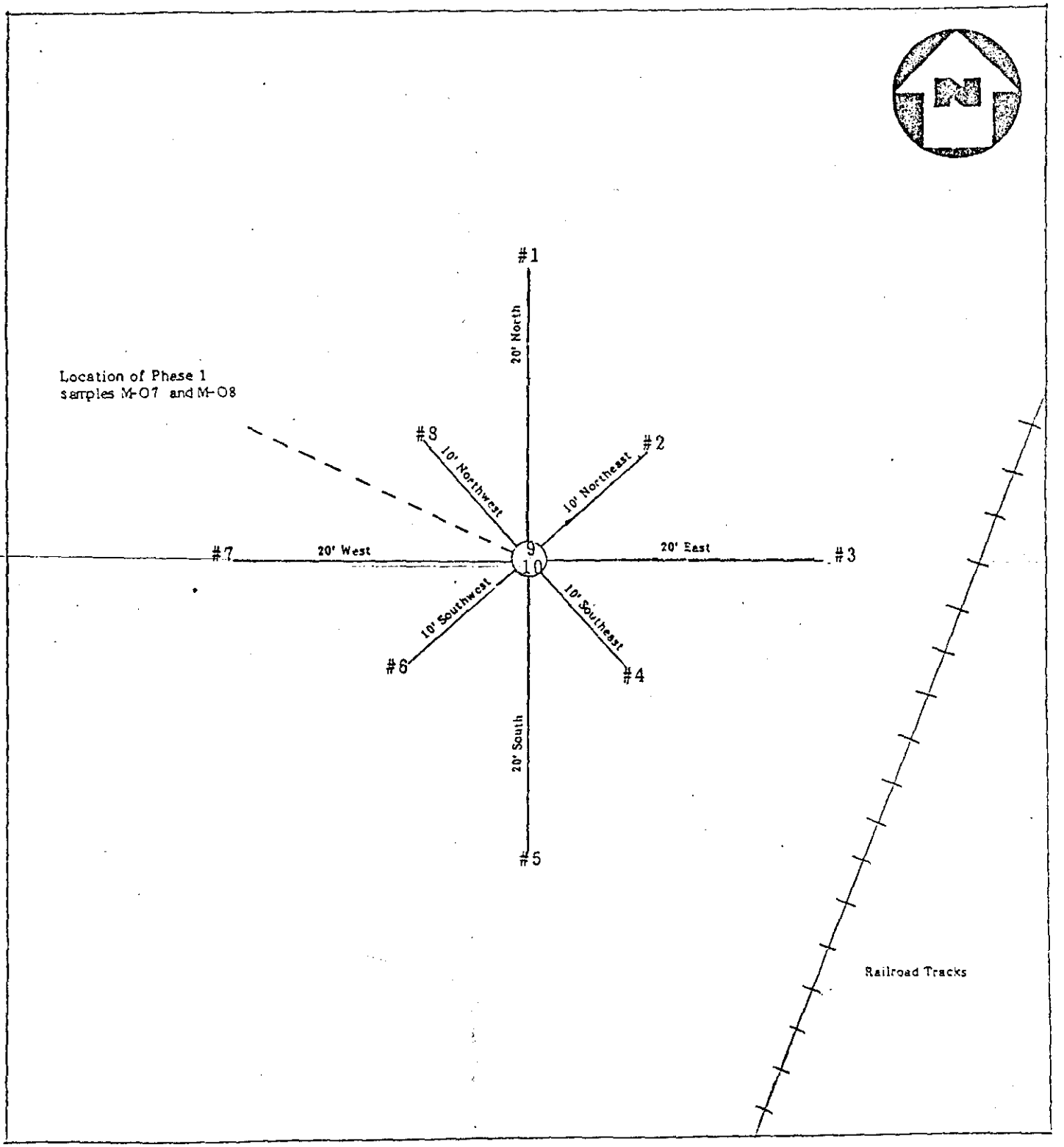
SITE NAME: Miller Chemical

TDD NO.: F3-8310-19

EPA NO.: M-03

TITLE: Sample Location Map/Phase II

FIGURE NO. 3



SOURCE: Site Visit 10/18/83

SCALE: 1" = 10'

APPENDIX D

FEDERAL EXPRESS

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(pink)

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FROM (Your Name)

COMPANY: NUS CORPORATION

DEPARTMENT/FLOOR NO.

STREET ADDRESS

TO (Recipient's Name)

If Hold For Pick-Up or Saturday Delivery, Recipient's Phone Number

COMPANY

DEPARTMENT/FLOOR NO.

STREET ADDRESS (P.O. BOX NUMBERS ARE NOT DELIVERABLE)

AIRBILL NO. 773048905

ZIP

YOUR NOTES/REFERENCE NUMBERS (FIRST 12 CHARACTERS WILL APPEAR ON INVOICE)

PAYMENT: Bill Shipper / Bill Recipient's FE Acct. / Bill 3rd Party F.E. Acct. / Bill Credit Card / Cash in Advance / Account Number/Credit Card Number

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PACKAGES | WEIGHT | DECLARED VALUE

PRIORITY 1 (OVERNIGHT PACKAGES) (Up to 70 LBS.)

HOLD FOR PICK-UP AT FOLLOWING FEDERAL EXPRESS LOCATION SHOWN IN SERVICE GUIDE. RECIPIENT'S PHONE NUMBER IS REQUIRED.

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SATURDAY SERVICE REQUIRED

RESTRICTED ARTICLES SERVICE

AGT/PRO

ADVANCE ORIGIN

AGT/PRO

ADVANCE DESTINATION

ORIGINAL (Red)

TOTAL | TOTAL | TOTAL

OTHER

STANDARD AIR

ORM'S AND RADIOACTIVE MATERIAL ONLY

RECEIVED AT: SHIPPER'S DOOR / F.E.C. REGULAR STOP / REGIONAL STOP

TOTAL CHARGES

OVERNIGHT IS NEXT BUSINESS DAY (MONDAY THROUGH FRIDAY). TWO DAYS FROM ALASKA/HAWAII. SATURDAY DELIVERY AVAILABLE IN CONTINENTAL U.S. SEE "SPECIAL HANDLING."

Federal Express Employee No.

DATE/TIME For Federal Express Use

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REVISION DATE 2/88 s
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AIRBILL NUMBER
773048905

SHIPPER'S CERTIFICATION FOR RESTRICTED ARTICLES
(TYPE OR PRINT)

[redacted]

LIMITED QUANTITY — CARGO AIRCRAFT ONLY

ADDITIONAL DESCRIPTION REQUIREMENTS FOR RADIOACTIVE MATERIALS (SEE BACK)

[redacted]

THIS SHIPMENT IS WITHIN THE LIMITATIONS PRESCRIBED FOR PASSENGER AIRCRAFT / CARGO AIRCRAFT ONLY (DELETE-NONAPPLICABLE)

IF ACCEPTABLE FOR PASSENGER AIRCRAFT, THIS SHIPMENT CONTAINS RADIOACTIVE MATERIAL INTENDED FOR USE IN, OR INCIDENT TO, RESEARCH, MEDICAL DIAGNOSIS OR TREATMENT.

I HEREBY CERTIFY THAT THE CONTENTS OF THIS CONSIGNMENT ARE FULLY AND ACCURATELY DESCRIBED ABOVE BY PROPER SHIPPING NAME AND ARE CLASSIFIED, PACKED, MARKED, AND LABELED, AND IN PROPER CONDITION FOR CARRIAGE BY AIR ACCORDING TO APPLICABLE NATIONAL GOVERNMENTAL REGULATIONS.

[redacted]

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

REGION 3
Curtis Bldg., 6th & Walnut Sts.
Philadelphia, Pennsylvania 19106

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME
F3-E310-9	Miller

SAMPLERS: *(Signature)*

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	16 oz JAR	REMARKS
1	10/18/93	0910		X	Soil #1	1	1	Matches Sample # 1
2	10/18/93	0915		X	Soil #2	1	1	2
3	10/18/93	0918		X	Soil #3	1	1	3
4	10/18/93	0910		X	Soil #4	1	1	4
5	10/18/93	0912		X	Soil #5	1	1	5
6	10/18/93	0915		X	Soil #6	1	1	6
7	10/18/93	0920		X	Soil #7	1	1	7
8	10/18/93	0922		X	Soil #8	1	1	8
9	10/18/93	0924		X	Soil #9	1	1	9
10	10/18/93	0945		X	Soil #10	1	1	10

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
Thomas W Fromm	10/19/93 1100	D. D. Wright 10/19			
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
Relinquished by: *(Signature)*	Date / Time	Received for Laboratory by: *(Signature)*	Date / Time	Remarks	
				split samples.	

ORIGINAL (Red)

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

3-11873

1.			
2.	6		
3.			
4.	8		
5.	9		
6.	10		
7.	11		
8.	12		
9.	13		
10.	14		
11.	15	2,3,7,8 TCDD	solid low
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			

For Lab Use Only

White - SMO Copy, Yellow - Region Copy, Pink - Lab Copy for return to SMO, Gold - Lab Copy

On October 18, 1983, NUS Corp. representative Tom Fromm received permission from AKSAY VIDYARTHI (site owner/operator), to remove the following materials from his/her property in the following containers:

0 ½ gallon amber containers, 0 40 ml VOA containers, 0 one quart polyethylene containers, and 10 ~~eight~~ sixteen-ounce glass jars.

Thomas W Fromm
NUS Corp. Representative

10/18/83
Date

A. A. Vidyarthi
Site owner/operator Representative

Date

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

TAS# 806C

CHAIN OF CUSTODY RECORD

REGION 3
Curtis Bldg., 6th & Walnut Sts.
Philadelphia, Pennsylvania 19106

PROJ. NO.: [illegible] 0310-19

PROJECT NAME: Miller Chemical

SAMPLERS: *(Signature)* [illegible signatures] Jernagan [illegible]

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	[illegible] JAR	[illegible] Vial				REMARKS TAG #
1	[illegible]	0910		x	Soil # 1	1	1					3-29851
2	[illegible]	0915		x	Soil # 2	1	1					3-29852
3	[illegible]	0918		x	Soil # 3	1	1					3-29853
4	10/18/83	0910		x	Soil # 4	1	1					3-29854
5	10/18/83	0912		x	Soil # 5	1	1					3-29855
6	10/18/83	0915		x	Soil # 6	1	1					3-29856
7	[illegible]	0920		x	Soil # 7	1	1					3-[illegible]
8	[illegible]	[illegible]		x	Soil # 8	1	1					3-[illegible]
9	[illegible]	[illegible]		x	Soil # 9	1	1					3-29857
10	[illegible]	0945		x	Soil # 10	1	1					3-29860
11	[illegible]	1047		x	Rinsate	1	1					3-29861
[illegible]	[illegible]	0940		x	Background Soil	1	1					3-29885
[illegible]	[illegible]	0940		x	Background soil to be spiked	1	1					3-29886
[illegible]	[illegible]	1000		x	Facility loading area	1		1				3-29887
[illegible]	[illegible]	1000		x	Facility loading area	1		1				3-29888

Relinquished by: *(Signature)*	Date / Time		Received by: *(Signature)*	Relinquished by: *(Signature)*	Date / Time		Received by: *(Signature)*
[illegible] Jernagan	[illegible]	1300					
Relinquished by: *(Signature)*	**Date / Time**		**Received by:** *(Signature)*	**Relinquished by:** *(Signature)*	**Date / Time**		**Received by:** *(Signature)*

Relinquished by: *(Signature)*	Date / Time		Received for Laboratory by: *(Signature)*	Date / Time		Remarks
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3-11872

Appendix E

PROJECT NAME: Miller Chemical
TDD NO: F3-8310-14

EPA SITE NO.: M-03
REGION: III

QUALITY ASSURANCE REVIEW OF DIOXIN ANALYSIS LAB DATA PACKAGE

Case No./SAS No.: 806C (Resampling)
Contract No.: [not specified]
Contract Laboratory: Wright State Univ.
Analytical Protocol: Region III RCDD 9/83 Rev.
Reviewer: R. Slobada
Review Date: 2/14/84

Applicable Sample No's.: Soil #1, 2, 3, 4, 5, 6, 7, 8, 9, 10, rinseate (station 11), 12, 13, 14, 15

The dioxin analytical data for this case has been reviewed. The quality assurance evaluation is summarized in the following table:

Reviewer's Evaluation*	Fraction				
	2,3,7,8-TCDD	Other TCDD's	Other chlorinated dibenzodioxins	2,3,7,8-TC dibenzofuran	Other Cl'd dibenzofurans
Acceptable	✓	Not analyzed →			
Acceptable with exception(s)					
Questionable					
Unacceptable					

* Definitions of the evaluation score categories are listed on next page.

This evaluation was based upon an analysis of the review items indicated below:

- ✓ DATA COMPLETENESS
- ✓ BLANK ANALYSIS RESULTS
- ✓ SURROGATE SPIKE RESULTS
- ✓ MATRIX SPIKE RESULTS
- ✓ DUPLICATE ANALYSIS RESULTS
- ✓ QUALITATIVE REQUIREMENTS
- ✓ CALIBRATION STANDARDS
- ✓ PERFORMANCE AUDIT RESULTS
- ✓ CALCULATION CHECKS

Data review forms are attached for each of the review items indicated above.

Comments: This case corresponds to resampling near the location where a supposed background soil from SAS 629C earlier sampling came out positive. Data valid & indicates presence of TCDD in areas around original location.

DATA EVALUATION SCORE CATEGORIES

ACCEPTABLE: Data is within established control limits, or the data which is outside established control limits does not affect the validity of the analytical results.

ACCEPTABLE WITH EXCEPTION(S): Data is not completely within established control limits. The deficiences are identified and specific data is still valid, given certain qualifications which are listed below.

QUESTIONABLE: Data is not within established control limits. The deficiences bring the validity of the entire data set into question. However, the data validity is neither proved nor disproved by the available information.

UNACCEPTABLE: Data is not within established control limits. The deficiences imply the results are not meaningful.

TCDD DATA COMPLETENESS CHECKLIST

Instrument run #	3704410-64	-65	-66	-71	-72	-73	-74	-75	-76	-77	-78
SAMPLE NO.	Method Blank	1	2	3	4	5	6	7	8	9	10
LAB I.D.NO.	NBC-01	-1	-2	-3	-4	-5	-6	-7	-8	-9	-10
MATRIX	Solid	→	→	→	→	→	→	→	→	→	→
RUN DATE/TIME	11/2 15:49	16:10	16:38	11/3 11:58	12:30	13:18	13:50	14:15	14:41	ORIGINAL 15:07	15:35
INSTRUMENT I.D. NO.	✓	→	→	→	→	→	→	→	→	(Red) →	→
TABULATED RESULTS	✓	→	→	→	→	→	→	→	→	→	→
DETECTION LIMITS	✓	→	→	→	→	→	→	→	→	→	→
SURROGATE ACCURACY	✓	→	→	→	→	→	→	→	→	→	→
ION AREAS	✓	→	→	→	→	→	→	→	→	→	→
ION RATIOS	✓	→	→	→	→	→	→	→	→	→	→
MID CHROMATOGRAMS	✓	→	→	→	→	→	→	→	→	→	→
PREVIOUS RUN AREAS											
PREVIOUS RUN CHROS.											
REANALYSIS LOG											
3 PT-CALIB. R.F./AMTS.	✓	→	→	→	→	→	→	→	→	→	→
3 PT-CALIB. MID.CHROS.	✓	→	→	→	→	→	→	→	→	→	→
DAILY CALIB. RF/AMTS.	✓	→	→	→	→	→	→	→	→	→	→
DAILY CALIB. MID CHROS.	✓	→	→	→	→	→	→	→	→	→	→
ISOMER SEPARATION CHROS.	✓	→	→	→	→	→	→	→	→	→	→
STANDARD SOURCE	✓	→	→	→	→	→	→	→	→	→	→
EXTRACTION WT.	✓	→	→	→	→	→	→	→	→	→	→
CLEANUP METHOD	✓	→	→	→	→	→	→	→	→	→	→
CALCULATION VOLUMES	✓	→	→	→	→	→	→	→	→	→	→
PARTIAL SCAN SPECTRA											
HIGH RESOLUTION DATA											
LAB SPIKE RECOVERY											
LAB DUPLICATE										✓	
LAB BLANK	✓										
PERFORMANCE AUDIT SPL.											
INTER-LAB. DUPLICATE											
SAMPLE BLANK											
DECON. RINSATE											

TCDD DATA COMPLETENESS CHECKLIST

ORIGINAL (Sed)

Instrument run #	-79	-80	-81	-82	-83	-132			
SAMPLE NO.	11	12	13	14	15	9-DUP	15-Hi Res		
LAB I.D. NO.	NMC-11	-12	-13	-14	-15	-9BD	-15H		
MATRIX	Solvent	Soil	→	→	→	→	→		
RUN DATE/TIME	11/3/93 16:01	16:26	16:51	17:13	17:35	11/17 16:23	11/17 12:55		
INSTRUMENT I.D. NO.	✓	→	→	→	→	→	→		
TABULATED RESULTS	✓	→	→	→	→	→	→		
DETECTION LIMITS	✓	→	→	→	→	→	→		
SURROGATE ACCURACY	✓	→	→	→	→	→	→		
ION AREAS	✓	→	→	→	→	→	→		
ION RATIOS	✓	→	→	→	→	→	→		
MID CHROMATOGRAMS	✓	→	→	→	→	→	→		
PREVIOUS RUN AREAS									
PREVIOUS RUN CHROS.									
REANALYSIS LOG									
3 PT. CALIB. R.F./AMTS.	✓	→	→	→	→	→	→		
3 PT. CALIB. MID CHROS.	✓	→	→	→	→	→	→		
DAILY CALIB. RF/AMTS.	✓	→	→	→	→	→	→		
DAILY CALIB. MID CHROS.	✓	→	→	→	→	→	→		
ISOMER SEPARATION CHROS.	✓	→	→	→	→	→	→		
STANDARD SOURCE	✓	→	→	→	→	→	→		
EXTRACTION WT.	✓	→	→	→	→	→	→		
CLEANUP METHOD	✓	→	→	→	→	→	→		
CALCULATION VOLUMES	✓	→	→	→	→	→	→		
PARTIAL SCAN SPECTRA									
HIGH RESOLUTION DATA							✓		
LAB SPIKE RECOVERY			✓						
LAB DUPLICATE						✓			
LAB BLANK									
PERFORMANCE AUDIT SPL.				✓	✓				
INTER-LAB. DUPLICATE									
SAMPLE BLANK (Background soil)		✓							
DECON. RINSATE	✓								

Blank Analysis Results

ORIGINAL (Red)

The contaminants found in the blanks are listed below:

FRACTION	TYPE OF BLANK	SAMPLE NO.	SOURCE OF water/soil	CONTAMINANTS (concentration/DL)
TCDD	Lab Method Blank	NMC-0	Lab	2,3,7,8-TCDD (ND/DL 0.04 ug/kg)
TCDD	Background soil sample	NMC-12	offsite soil	2,3,7,8-TCDD (ND/DL 0.04 ug/kg)

COMMENTS: Ghosting not suspected in any runs. All results qualitatively valid since no blank contamination.

SURROGATE SPIKE RECOVERIES (RELATIVE TO INT. STD.)

* Asterisked values are outside of QC limits

Surrogate compound name:	37Cl-2378-TCDD										
Analytical Fraction:	TCDD										
QC LIMITS FOR SOILS Laboratory C.L.:											
QC LIMITS FOR SOILS EPA Action:	60-140										
QC LIMITS FOR SOILS source:	Ref. 1	Ref.	Ref.	Ref.			Ref.	Ref.	Ref.	Ref.	Ref.
QC LIMITS FOR WATER Laboratory C.L.:											
QC LIMITS FOR WATER EPA ACTION:											
QC LIMITS FOR WATER source:	Ref.	Ref.	Ref.	Ref.			Ref.	Ref.	Ref.	Ref.	Ref.
Matrix / Sample no.					Matrix	Sample no.					
soil	NM2-0	103									
	-1	102									
	-2	101									
	-3	101									
	-4	98									
	-5	102									
	-6	99									
	-7	103									
	-8	104									
	-9	103									
	-10	102									
solvent	-11	101									
soil	-12	103									
	-13N	97									
	-14	98									
	-15	96									
	-9BD	90									
	-15H	101									

Source of QC Limits: Ref. 1: Data package this project
Ref. 2:

COMMENTS: Acceptable recoveries

Matrix Spike Results (spiked by laboratory)

compound	original Sample no.	spiked Sample no.	concentration (PPB) ADDED	FOUND	UNSPIKED	RELATIVE RECOVERY	LABORATORY CONTROL LIMITS	EPA CONTROL LIMITS
2,3,7,8-TCDD	NMC-13	NMC-13N	1.148	1.33	ND	116%	(Not established)	

* An asterisk indicates values outside control limits.

Comments:— Acceptable recovery.

Duplicate Analysis Results

compound	Type of duplicate (Inter/Intra-Lab)	Sample No. /Lab Name	Concentration	Sample No /Lab Name	conc.	Relative Percent Difference
2,3,7,8-TCDD	intralab (first sampling)	m-03-07/wright state	0.27 ug/kg	same (re-run)	0.25 ug/kg	7.7%
2,3,7,8-TCDD	interlab "	m-03-07/wright state	0.26 ug/kg (mean)	m-03-07/ETC (mean)	0.255 ug/kg	0.2%
2,3,7,8-TCDD	intralab "	m-03-07/ETC	0.21 ug/kg	same (Lab Duplicate)	0.30 ug/kg	35%
" "	intralab (New sampling)	NMC-9/wright st.	1.76 ug/kg	same (Lab duplicate)	1.11 ug/kg	45%
" "	interlab (comparison of old versus new sampling at same point)	m03-07/mean	0.26 ug/kg	NMC-9/(mean) wright state	1.43 ug/kg	139%
" "						

Control limits: Not Established Source of QC Limits: _____

* An asterisk indicates outliers.

Comments: Excellent interlab agreement is noted for the first round of sampling. However, comparison of the resampling result versus the original result at the same sampling station and at the same depth reveals difference larger than either intralab or interlab result from original sampling. Difference may be due to field blend before interlab split was done during phase one sampling, whereas phase two sample was collected later.

C21

Qualitative Requirements

A. 1. Isomer Specificity Demonstrated in Documentation? (Y/N) Yes

2. Isomer Specificity Demonstrated in Documentation within 8 hours to all positive sample runs? (Y/N) Yes

Exceptions: None

B. 1. 320/322 Ion Ratio within QC Limits (.67 - .87) for all positives?

Y/N Yes Exceptions High resolution performance audit confirmation showed 0.89 ratio; this does not affect data validity for real samples

C. 1. 320, 322, 257 All maximize together (within 3 seconds)? (Y/N) Yes

Exceptions None

2. S/N greater than 2.5 for each ion? (Y/N) Yes Exceptions: None

D. Retention time of surrogates and internal standard same as native TCDD?

(Y/N) Yes Exceptions None

E. Confirmation Data

1. At least one confirmed per set of 24? (Y/N) Yes Exceptions Lab Confirmed Performance audit sample, but not real field sample.

2. High resolution confirmation? (Y/N) Yes Comments Performance audit sample, not real sample confirmed.

3. Partial scan confirmation? (Y/N) ____

→ Ion Ratios: QC Limits:

320/322 ____

320/324 ____

257/259 ____

194/196 ____

160, 161, 194, 196, 257, 259, 320, 322, 324 ____

Comments ____

Calibration Standards

Calibration data provided for 3 concentration levels? (Y/N) Yes
Exceptions: —

Linearity verified within working range? (RRF < 10% RSD) Yes
Exceptions: High resolution calibration less precise, but data validity unaffected since only performance audit sample was run by this method.
Calibration Check data provided for all sample runs? (Y/N) No, but multilevel run within 8 hours of spls
Exceptions: —

Check standard RRF's within ±10% of multilevel calibrations? (Y/N) Cannot evaluate — no checks.
Exceptions: However, 1ppb std. was within 10% of multilevel mean in each case for low resolution calibrations. (High resolution calibration with 15% of mean.)
Average RRF from calibration used in all calculations? (Y/N) Yes
Exceptions: —

CALIBRATION LOG

EQUIVALENT PPB LEVEL OF TCDD	INSTRUMENT IDENTIFIER	RUN FILE IDENTIFIER	DATE/TIME OF INJECTION	RESPONSE FACTORS: 2,3,7,8-TCDD	$^{37}Cl_4$-2,3,7,8-TCDD	ISOMER STD, CHECK STD or MULTILEVEL
1.0	Kratos MS25	SYN40055	11/2 10:38	0.90	1.33	multilevel
5.0	" "	" 54	11/2 10:05	1.00	1.33	" "
25.0	" "	" 63	11/2 15:11	1.03	1.23	" "
				Ave = 0.977		
1.0	" "	" 68	11/3 10:26	0.86	1.27	multilevel
5.0	" "	" 69	11/3 11:00	0.90	1.27	" "
25.0	" "	" 70	11/3 11:29	1.02	1.29	" "
				Ave = 0.927		
1.0	" "	" 128	11/17 14:11	1.21	1.73	multilevel
5.0	" "	" 129	11/17 14:44	1.29	1.80	" "
25.0	" "	" 131	11/17 15:51	1.45	1.80	" "
				Ave = 1.317		
1.0	AEI MS-30	HR030004	11/17 11:53	2.36	3.85	multilevel
5.0	" " "	" 3	11/17 11:07	2.86	3.97	" "
25.0	" " "	(missing chromatogram)	11/17 10:40	3.13	4.14	" "
	Kratos MS25	SYN40056	11/2 11:17	(<25% Valley)		Isomer Std.
		" 67	11/3 9:54	" "		" "
		" 127	11/17 13:32	" "		" "
		HR03005	11/17 12:20	" "		" "

• Calculation check for Response factor (Approximate since areas not tabulated in data):

1.0 ppb std. on 11/2: $RF = \frac{(6913 + 8384)(0.5)}{(18672 + 24105)(0.2)} = 0.894 \cong 0.90$ Reported ✓

• Calculation check for Positive samples: Formula: $\text{conc (ppb)} = \frac{\text{area}(320+322) \times 25}{\text{area}(332+334)(\text{wt. of sample in grams})(\text{Response factor})}$

#1 Check O.K.
#2 OK
#5 OK
#6 OK
#7 OK
#8 OK
#9 OK
#10 OK
#11 (N.D. detected)
#12 (N.D. detected)
#13N OK
#14 OK
#15 OK #9DD OK

Performance Audit Results

Perf. Audit Batch ID: 3.2

Source and Preparation: Louisiana soil, spiked at U of Nevada and blended for EMSL-LV

Date Prepared: 6/[illegible]/83

Analyte and Matrix: 2,3,7,8-TCDD

Interferents added: 1,2,3,4-TCDD (2PPB), 4,4'-DDE (10PPB), 4,4'-DDD (10PPB), PCB 1260 (50PPB), chlordane (25PPB)

Reference Analysis Results (Received to date):

P.A. Batch I.D.:	3.2	→	→	→	→
Analyte:	2,3,7,8-TCDD	→	→	→	→
SAS (Sample Batch):	691C	724C	806C	—	F3-33 16-33
Date Analyzed:	8/1	8/19	11/3	Reference Analysis U of Nevada	11/83
LABORATORY:	B	C	W		M
SAMPLE No:	Poj-55	Poj-58	14	—	A-2
RESULT:	1.59	1.61	2.02	—	1.7
SAMPLE NO.:	—	Poj-59	15	—	—
RESULT:	—	1.66	2.00	—	—
MEAN:	1.59	1.64	2.01	1.7	1.7
Difference:	—	0.05	0.01	—	—

ANALYTE/Perf. Audit Batch: 3.2

STATISTIC MEASURED: individual results

Number of values: 7

mean: 1.75

standard deviation: 0.180

Performance Audit Sample Results:

Performance Audit Batch I.D.:	3.2	
Sample no.:	NMC-14	NMC-15
compound: 2,3,7,8-TCDD		
concentration: (PPB)	2.02	2.00
mean value of audit pair (this batch):	2.01	
this lab's preceeding mean (last batch):	NE	
(2.58σ) control Limits for mean (this batch):	NE	
(1.96σ) control Limits for consecutive outliers:	NE	
Audit Pair difference:	0.02	
(RPD) for (this batch) audit pair:	1%	
RPD for this lab's last batch:	NE	
(2.58σ) control limits for RPD (this batch):	NE	
(1.96σ) control limits for RPD consecutive:	NE	

*An asterisk indicates values beyond 1.96 standard deviations from the mean.

**A double asterisk indicates values beyond 2.58 standard deviations from the mean.

NE = Not established due to insufficient data.

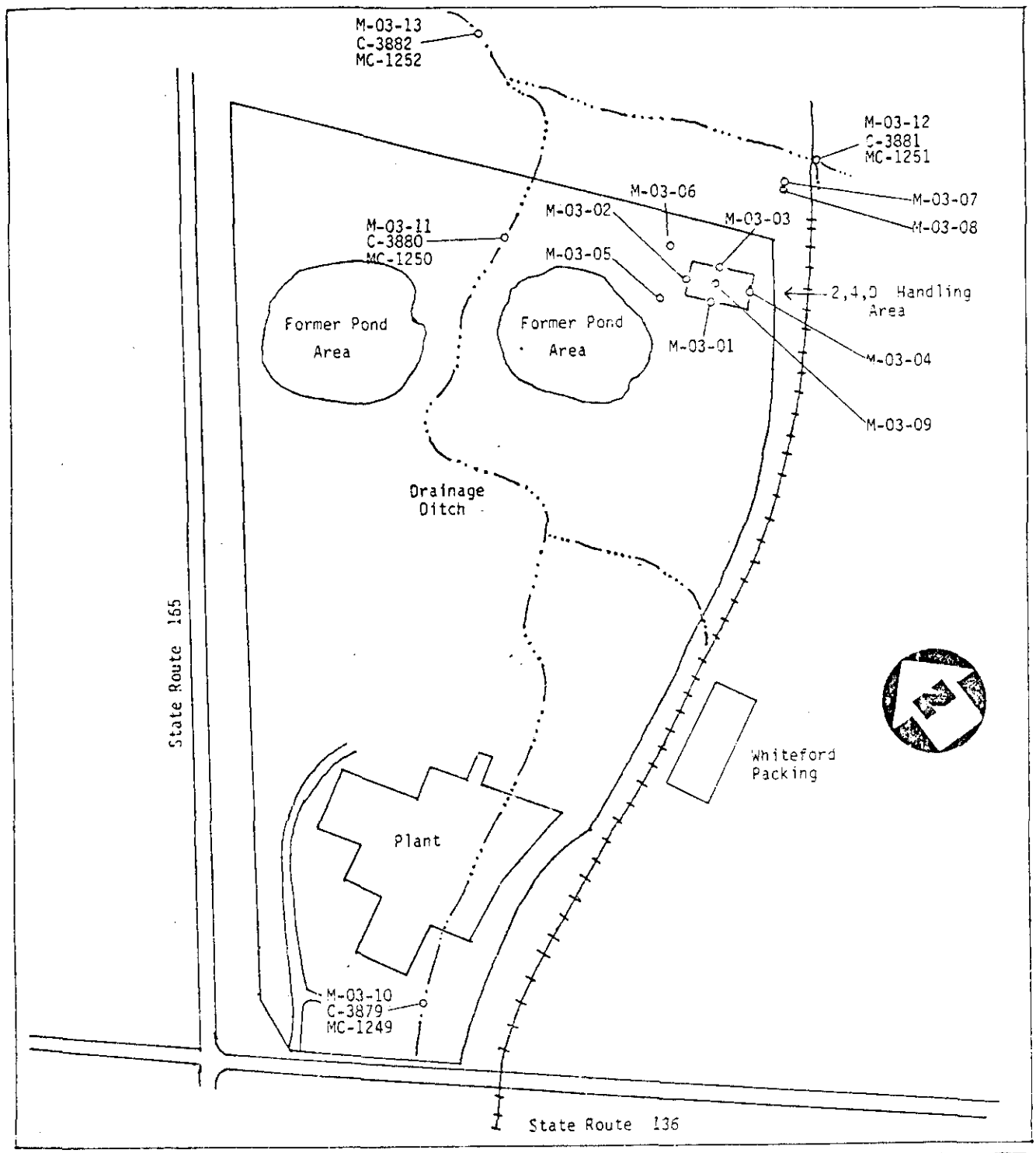
Comments:

Values are in acceptable agreement with previous data, and with the reference analysis results by U of Nevada.

Appendix F

SITE NAME: Miller Chemical
TDD NO.: F3-8310-19
EPA NO.: M-03
TITLE: Sample Location Map
FIGURE NO.: 3

ORIGINAL (Red)



NUS CORPORATION
A Halliburton Company

SOURCE: Field Visit 6/22/83

SCALE: Not to Scale

TABLE 1

BREHM LABORATORY, WRIGHT STATE UNIVERSITY, DAYTON, OHIO 45435

RESULTS OF HRGC-LRMS ANALYSES OF EXTRACTS OF EPA/REGION VII SAMPLES SUBMITTED UNDER VIAR & COMPANY SAS NO. M03 FOR 2,3,7,8-TETRACHLORODIBENZO-p-DIOXIN (TCDD)

EPA Sample Extract	WSU Sample Extract	Extraction	Cleanup	Sample Weight (grams)	Concentration of TCDD[a] (µg/Kg)	D.L. (µg/Kg)	Ratio m/z 320/ m/z 322	Surrogate Percent Accuracy	Ratio m/z 332/ m/z 334	m/z 320	m/z 322	m/z 257	m/z 259	m/z 328	m/z 332	m/z 334
M03-01 3-16696	NUS-1	J	B&C	11.48	N.D.	0.12	--	94	0.72	N-130[b]	N-500	N-300	N-350	16200	22500	31260
M03-02 3-16697	NUS-2	J	B&C	11.57	N.D.	0.06	--	95	0.73	N-150	N-150	N-200	N-300	16050	22300	30650
M03-03 3-16698	NUS-3	J	B&C	10.51	N.D.	0.05	--	84	0.86	N-200	N-200	N-250	N-200	22400	38500	44530
M03-04 3-16699	NUS-4	J	B&C	10.63	N.D.	0.04	--	89	0.70	N-160	N-160	N-400	N-400	21600	31440	45250
M03-05 3-16700	NUS-5	J	B&C	11.77	N.D.	0.04	--	90	0.82	N-200	N-150	N-300	N-300	25140	39360	48200
M03-06 3-16868	NUS-6	J	B&C	10.77	N.D.	0.03	--	96	0.74	300	240	500	1000	16960	23360	31700
M03-07 3-16869	NUS-7	J	B&C	11.19	0.27	--	0.76	95	0.69	1340	1710	900	1000	14000	18790	27160
M03-08 3-16870[c]	NUS-8	J	B&C	11.92	1.09	--	0.84	92	0.72	8660	10270	4320	4310	19380	27650	38470
M03-09 3-16871	NUS-9	J	B&C	11.59	N.D.	0.07	--	89	0.71	N-200	N-150	N-300	N-300	13050	19160	26870
M03-10 3-16872	NUS-10	J	B&C	11.96	N.D.	0.07	--	85	0.72	N-200	N-300	N-1000	N-1100	19100	29270	40710
M03-11 3-16873	NUS-11	J	B&C	11.41	N.D.	0.13	--	87	0.70	N-300	N-400	N-1100	N-650	15040	22160	31830
M03-12 3-16874	NUS-12	J	B&C	17.51	N.D.	0.09	--	81	0.77	N-360	N-300	N-1000	N-1000	12780	21310	27800
M03-13 3-16875	NUS-13	J	B&C	11.40	N.D.	0.07	--	79	0.75	N-200	N-250	N-3700	N-1400	16050	27270	36300
M03-14 3-16876	NUS-14	J	B&C	100ml	N.D.	0.01	--	87	0.74	N-380	N-360	N-2000	N-1350	20320	30970	41870
M04-08D 3-16792	NUS-15	J	B&C	1.86	N.D.	0.60	--	84	0.74	N-500	N-400	N-1260	N-1600	25910	40750	55330
M03-16 3-24908	NUS-16	J	B&C	10.89	3.07	--	0.82	82	0.73	27700	33870	14880	14740	22090	35340	48470
M03-17 24907	NUS-17	J	B&C	10.69	3.27	--	0.80	97	0.70	25830	32300	11475	11625	23020	30580	43550
MB[d]	NUS-0	J	B&C	--	N.D.	0.12	--	96	0.67	N-200	N-300	N-300	N-640	14900	19330	28900
M03-16 24906[e]	NUS-16B	J	B&C	10.02	2.86	--	0.83	96	0.85	20220	24290	8615	7950	23820	42040	35580

SAMPLE DATA SUMMARY
TARGET COMPOUNDS

TDD Number F3-8306-17
EPA Number

☐ Organic ☒ Inorganic

Site Name Miller Chemical & Fertilizer
Date of Sample June 22, 1983

Compounds Detected

Sample Number	Sample Description and Location	Phase	Units	Cadmium	Lead	Selenium											Remarks
MC 1249	Sediment UPSTREAM	Sol	Mg/Kg	.05	45												
MC 1250	Sediment MID-STREAM	Sol	Mg/Kg		20	0.1											
MC 1251	Sediment upstream of confluence	Sol	Mg/Kg	0.2	60												
MC 1252	Sediment downstream of confluence	Sol	Mg/Kg	0.15	150												
MC 1253	Blank	Sol	Mg/Kg														

NOTE: For a review of this data and non-target, tentatively identified compounds, please see the Analytical Quality Assurance section of this report.

(Best) THAN COPY

...significance based upon quality assurance review of data.

SAMPLE DATA SUMMARY
TARGET COMPOUNDS

TDD Number F3-B306-17
EPA Number

☐ Organic ☒ Inorganic

Site Name Miller Chemical & Fertilizer
Date of Sample June 22 1983

Sample Number	Sample Description and Location	Phase	Units	Compounds Detected: Aluminum	Barium	Beryllium	Boron	Chromium	Cobalt	Copper	Iron	Manganese	Nickel	Vanadium	Zinc	Arsenic	Remarks
MC 1249	Sediment upstream	Sol	mg/Kg	3710	5.0	0.25	5.0	31.5	5.0	5.0	22,000	193	54	20	27.5	6.0	
MC 1250	Sediment mid stream	Sol	mg/Kg	5840	75.0	0.50		29.5	7.5	5.0	7940	174	18	10	18	3.0	
MC 1251	Sediment upstream of confluence	Sol	mg/Kg	2560	30.0	0.25		11.0	5.0	12.5	6360	188	22		52.5	2.0	
MC 1252	Sediment downstream of confluence	Sol	mg/Kg	2050	10.0			18.5	12.5	15.0	10,400	270	22	30	36	30	
MC 1253	Blank	Sol	mg/Kg														

NOTE: For a review of this data and non-target, tentatively identified compounds, please see the Analytical Quality Assurance section of this report.

◇ Denotes results of questionable qualitative significance based upon quality assurance review of data.

SAMPLE DATA SUMMARY
TARGET COMPOUNDS

TDD Number F3-8306-17

EPA Number

☒ Organic ☐ Inorganic

Site Name Miller Chemical & Fertilizer

Date of Sample June 22, 1983

Compounds Detected

Sample Number	Sample Description and Location	Phase	Units	4-methylphenol	benzo(a)anthracene	benzo(a)pyrene	benzo(b)fluoranthene	benzo(k)fluoranthene	acenaphthylene	anthracene	benzo(ghi)perylene	fluorene	phenanthrene	indeno(1,2,3-cd)pyrene	acenaphthene	Remarks
C 3879	Sediment upstream	Sol	ug/Kg													
C 3880	Sediment Mid-stream	Sol	ug/Kg													
C 3881	Sediment upstream of confluence	Sol	ug/Kg	1900	4300	1800	3500	2000	1000	920	880	440	4500	960	<400	
C 3882	Sediment downstream of confluence	Sol	ug/Kg													
C 3883	Blank	Sol	ug/Kg													

NOTE: For a review of this data and non-target, tentatively identified compounds, please see the Analytical Quality Assurance section of this report.

SA[illegible] DA[illegible] MM/[illegible]

TARGET COMPOUNDS

TDD Number F3-8306-17

EPA Number

☒ Organic ☐ Inorganic

Site Name Miller Chemical & Fertilizer

Date of Sample June 22, 1983

✓ ✓ Compounds Detected

Sample Number	Sample Description and Location	Phase	Units	methylene chloride	Toxaphene	Fluorotrichloromethane	Toluene	fluoranthene	bis(2-ethylhexyl) phthalate	di-n-octyl phthalate	crysene	pyrene	4,4-DDT	4,4-DDE	4,4-DDD	N-nitrosodiphenylamine	Remarks
C3879	Sediment upstream	Sol	ug/Kg	7.0◇	479												
C3880	Sediment mid-stream	Sol	ug/Kg	8.0◇		<2.5◇										<400	
C3881	Sediment upstream of confluence	Sol	ug/Kg	5.0◇		9.0◇		12,000	<400◇		4000	12,000					
C3882	Sediment downstream of confluence	Sol	ug/Kg	8.0◇		3.0◇		<800	12,000	<800◇	<800	<800	13.0◇	2.87◇	11.9◇		
C3883	Blank	Sol	ug/Kg	73		6.2	<2.5										

NOTE: For a review of this data and non-target, tentatively identified compounds, please see the Analytical Quality Assurance section of this report.

◇ *Denotes results of questionable qualitative significance based upon quality assurance review of data.*